

IN GERMANY THE INSURED PERSON AND THE PHYSICIAN ARE BOTH IN BONDAGE TO THE GOVERNMENT

I conclude these observations on the German situation with a statement recently published in the *Philadelphia Daily News* by H. R. Knickerbocker, a well-known foreign correspondent. He gives the following table of taxes, dues and contributions of one sort or another paid by the German workman at the present time out of a slender income which, in seven hours, is said to produce a wage only equivalent to that earned in the United States for the same kind of labor in two hours:

TABLE 2.—*Insurance and Taxes Paid by the German Workman Today*

	Reichsmark
Income tax.....	2.10
Old-age insurance.....	1.20
Citizens' tax.....	1.25
Sickness insurance.....	1.20
Unemployment insurance.....	1.30
Tax for aid unemployment.....	.80
Bachelor tax.....	2.10
German work-front dues.....	1.50
	11.45

Thus the wage earner is in bondage to the government as much as is the insurance physician, and both are confronted with an apparently hopelessly confused problem which only a social revolution can possibly change.

THE LURE OF MEDICAL HISTORY*

THE INFLUENCE OF CLAUDE BERNARD ON MEDICINE IN THE UNITED STATES AND ENGLAND†

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I

DURING the nineteenth century no medical student in the United States felt that he had really completed his studies until he had visited the hospitals and laboratories of Europe. It has been suggested that on account of the bitter feeling towards England after the Revolutionary War, and especially after the War of 1812, few of these young physicians cared to study in England. It was Paris that attracted them, and this in spite of Claude Bernard's complaints regarding the poor facilities for medical research in France, and his covetous glances at the well-equipped laboratories of Germany.

When Bernard came to Paris in 1834 as a youth of twenty-one and abandoned a literary

*A Twenty-Five Years Ago column, made up of excerpts from the official journal of the California Medical Association of twenty-five years ago, is printed in each issue of *CALIFORNIA AND WESTERN MEDICINE*. The column is one of the regular features of the Miscellany Department of *CALIFORNIA AND WESTERN MEDICINE*, and its page number will be found on the front cover index.

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career to take up medicine, the famous clinician, Louis, was attracting students from all over the civilized world. Osler names nearly forty Americans, including Oliver Wendell Holmes, who crossed the Atlantic to study with this brilliant physician during the years 1830 to 1840. Bernard did not really become known in the medical world until about 1847, when he began to lecture at the Collège de France as substitute for Magendie, the aging Professor of Medicine. From 1850 on, his lecture demonstrations attracted foreign students as had the lectures and clinics of Louis two decades before.

BERNARD'S INTEREST IN THE BEAUMONT EXPERIMENTS

Bernard's reputation in 1850 is shown in a letter from an Illinois physician, Willis Green Edwards (who died in 1862), to William Beaumont, the pioneer American physiologist. Edwards was in Paris and he wrote to Beaumont of Bernard's interest in the experiments Beaumont had performed on Alexis St. Martin, and of Bernard's desire to know what had happened to St. Martin later in life. He said: "Your experiments are constantly imitated here by a large number of investigating physiologists, among whom M. Bernard probably stands first." It is worth while adding the comment of Beaumont's biographer: "The interest manifested by Bernard evidently rekindled the old spark of ambition and zeal, and prompted him to reopen correspondence" as to the whereabouts of his erstwhile patient, in order to get in touch with him for more experimentation.

At the time of Bernard's death in 1878, Austin Flint, Jr. (1836-1915), who had met Bernard in 1861, wrote in the *American Journal of the Medical Sciences*: "He was visited by nearly all physicians who went from this country to Europe to study disease in the hospitals. We now have in mind the remembrance of accounts given us by old practitioners of medicine of the wonderful dexterity in experimentation, of the unvarying affability and the patient and kind attention always given to strangers by the great French physiologist."

BERNARD'S WORK IN ANIMAL EXPERIMENTATION

One must remember that Bernard was an experimental physiologist, not a practicing physician, and that his operations and treatments were made upon dogs and rabbits, not on human patients. Indeed, his insistence upon rigidly controlled experiment, as the very foundation of medicine, at first alienated certain members of the profession. Later, however, all were to realize that Bernard's whole life had been spent in an attempt to bring medicine nearer to the goal of being a true science.

HIS INFLUENCE ON WEIR MITCHELL, DALTON AND DONALDSON

One of the first young physicians to be profoundly influenced by Bernard was Silas Weir Mitchell (1829-1914), who came to be famous not only for his rest cure, but also for his novels

and verse. Weir Mitchell's father was a professor in Jefferson Medical College, Philadelphia; and after the son had graduated from this institution in 1850, he spent a year in Paris, returning in the fall of 1851. He writes: "I took courses designed for surgical training, but I liked better the lessons of Bernard in physiology and Robin in microscopy. I recall one remark of Bernard's. I said, 'I think so and so must be the case.' 'Why think,' he replied, 'when you can experiment. Exhaust experiment, and then think.'" Upon his return home, Mitchell continued his researches, and in 1860 published an article on the venom of rattlesnakes. This problem was evidently started under Bernard, for the latter was working on this subject at the time Mitchell was in Paris, and only the year before had given a report before the Société de Biologie on the physiological action of venoms. In one of his lectures during the winter of 1859-1860, Bernard showed his class two samples of poison and said, "The properties of these poisons have been so well studied by M. Mitchell of Philadelphia."

This same year, another youth, whose obituary notices were to be written by Weir Mitchell half a century later, came under the spell of Bernard's teaching. John Call Dalton (1825-1889), received his M. D. from Harvard in 1847, and taught physiology for a year in Boylston Medical School (Boston), then at Buffalo, before going to Paris in 1850. When he returned to Buffalo and later, when he became professor of physiology in the College of Physicians and Surgeons in New York City, he showed that he had brought back with him not only the spirit of Bernard's teaching but also the method; for it is claimed that he was the first in this country to teach physiology by vivisection. When Bernard began to publish his lectures in 1855, it was Dalton who reviewed the first volumes in the *American Journal of the Medical Sciences*, prefacing the review with the following statement: "It may be truly said that M. Bernard has inaugurated a new epoch in experimental physiology. He has first placed the science on its true footing, and has indicated the only true course, that of experimenting on living or recently killed animals." In 1867 Dalton made a gallant defense of this method of arriving at the facts of physiological science in a pamphlet published under the auspices of the New York Academy of Medicine and entitled, "Vivisection: what it is, and what it has accomplished." In it he cites certain experiments of Bernard's. It might also be mentioned that Dalton's Treatise on Human Physiology, the first edition of which appeared in 1859, went through many editions, and in the 1880's was the most widely used textbook on the subject in the United States. Needless to say, description of Bernard's experiments occupies several pages, and in one place is accompanied by the remark, "the most important of which (*i. e.*, Bernard's experiments) we have repeatedly confirmed."

A third young American in Paris at this time, Francis Donaldson (1823-1891), who obtained his M. D. from the University of Maryland in

1846, sent back to the United States a digest of Bernard's lectures of 1850-1851. This was published at once in the *American Journal of the Medical Sciences*. Donaldson also was particularly impressed by the demonstrations on living material. He wrote: "It was curious enough to see walking about the amphitheatre of the College of France dogs and rabbits, unconscious contributors to science, with five or six orifices in their bodies from which, at a moment's warning, there could be produced any secretion of the body, including that of the several salivary glands, the stomach, the liver and the pancreas."

RECORD OF BERNARD'S WORK IN THE LITERATURE

Because many of the quotations above are taken from one American medical journal, the *American Journal of the Medical Sciences*, it must not be thought that it was the only one to report Bernard's lectures and discoveries. The following is a quotation from the Paris letter of the foreign correspondent, A. B. Hall, to the *Boston Medical and Surgical Journal* for November, 1853: "The lessons given at the College of France, during the summer session of 1853, by M. Claude Bernard, suppliant of M. Magendie, were exceedingly interesting. I will give you some of his remarks upon gaseous absorption." The letter ends, "But more anon. Respectfully, A. B. H."

Abstracts in medical journals, therefore, gave American physicians access to Bernard's latest researches, but one young man, Walter F. Atlee (1828-1910), M. D., University of Pennsylvania, 1850, after attending Bernard's lectures on blood in 1853-1854, felt that these lectures should be made known to the profession *in extenso*. He therefore asked permission to publish his notes on his return to Philadelphia. The book appeared in 1854. He evidently made few changes in his notes, for they read as if one were listening to Bernard talking. Sometimes the English is a literal translation of the French, as, "in summer when destruction marches rapidly"; sometimes there are comments, as, "M. Bernard promised to make some researches, and to give the results before the close of the course, but he never again referred to it." It is an interesting fact that this was the first series of Bernard's lectures to appear in book form, and that it should have been published in the United States and in English.

Perhaps better known to American medical practitioners than his *Leçons* was the "Treatise on Operative Surgery," in which Bernard wrote in collaboration with Ch. Huette in 1848. This work was translated into English by William Horne Van Buren (1819-1883), who came of a long line of physicians, his great-grandfather having been a pupil of the famous Dutch teacher, Boerhaave. He had spent some time in France after his graduation in medicine from the University of Pennsylvania in 1840, but it is improbable that he knew Bernard. Van Buren's translation appeared in 1855, and the notice in the *American Journal of the Medical Sciences*, signed E. H.,

praised it in the following terms: "It is unquestionably the handsomest compendium of operative surgery that has yet appeared, and, withal, so compactly as well as clearly arranged, that we are inclined to think that it may prove even more useful than it is ornamental. . . . With the best wishes for the success of a publication which does the highest honour to good taste, enterprise and judgment of all concerned, we most cordially recommend it as on all accounts worthy of a prominent place in every medical library, or on every office table." This book was furnished to army surgeons by the United States Government during the Civil War.

OTHER AMERICAN PHYSICIANS WHO STUDIED UNDER BERNARD

During the years 1845-1865, when Bernard was most active, there were nearly one hundred American physicians whose short biographies in Kelly and Burrage's *American Medical Biographies* show that they continued their medical studies by a year or so in France. In only a very few instances, however, is it specifically stated that the individual actually worked under Bernard, but we can add to the list of those already mentioned the names of Alfred L. Kennedy (1818-1896), who was with Bernard in 1848, immediately after obtaining his M. D. from the University of Pennsylvania, and William H. Mussey (1818-1882), who graduated from the Medical College of Ohio in 1848, and was with Bernard in 1851. The American students in Paris formed a society which they called the American Medical Society of Paris, and Mussey was elected its president during the year that he was there.

BROWN-SÉQUARD'S RELATION TO BERNARD

No list of those who brought Bernard's teaching to America, however abbreviated, should omit the name of that roving genius, Brown-Séquard (1817-1894), who moved back and forth between France and the United States like a shuttle in a loom. Posthumous son of an American father by a French mother, he had completed his medical studies in Paris under the greatest handicaps in 1846, and, like Bernard, had attempted to do experimental work in out-of-the-way holes and corners. He is reported to have lived in a garret with no stove to alleviate the dank chill of the Parisian winter, while hutches of rabbits and guinea-pigs contaminated the atmosphere. Bernard refers to Brown-Séquard as one of those physiologists who had to leave France because of lack of support in his chosen profession. In 1852 he thought he might fare better in his father's native land, and took passage in a sailing boat for the United States. He purposely chose so slow a vessel in order that the length of the voyage might permit him to learn English. Under the patronage of distinguished physicians in Boston, New York, and Philadelphia, he lectured on the discoveries of Magendie and Bernard, and even performed some original experiments. He returned to France, but in 1855 accepted for a short time a professorship at the

Virginia College of Medicine in Richmond. Again he crossed the Atlantic, only to return once more to hold for a brief three years (1864-1867) the professorship of the physiology and pathology of the nervous system at Harvard. Unfortunately, Brown-Séquard did not remain long enough in this country to be instrumental in doing for physiology here what Bernard was doing for that science in France, though he was considered worthy to succeed Bernard as professor of medicine at the Collège de France in 1878.

(To be continued)

CLINICAL NOTES AND CASE REPORTS

SUCTION APPARATUS FOR BLADDER OR DUODENAL DRAINAGE

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MANY different kinds of apparatus are in use throughout the country for the creation of mild continuous suction such as is used in suprapubic bladder or duodenal drainage. They consist, for the most part, of bottles, old syringes and rubber tubing, and very often are makeshift affairs, not understood by the nurses, so that the surgeons frequently need to refer to diagrams in order to construct them.

In order to overcome these disadvantages, I constructed and have used, for the past four years, the apparatus described below. It is inexpensive, efficient, requires little storage space, and is always ready for use.

It is made from the following parts, and connections may be provided by soldering or threading the various parts, as shown in the diagram:

- A—Hollow brass wire, $\frac{3}{8}$ inch outside diameter, 2 inches long.
- B—Copper tubing $\frac{1}{4}$ inch outside diameter, 36 inches long.
- C—Hollow brass wire $\frac{3}{8}$ inch outside diameter, 32 inches long.
- C'—Copper tubing $\frac{1}{4}$ inch outside diameter, 10 inches long.
- D—Brass tubing $\frac{3}{4}$ inch outside diameter, $6\frac{1}{2}$ inches long.
- E—Copper tubing $\frac{1}{4}$ inch outside diameter, $1\frac{1}{2}$ inches long.
- F—Brass "T."
- G-G'—Brass plugs, threaded and shaped as shown in diagram.

The parts are assembled and made air-tight by soldering, and the tubes B and C may be soldered together for rigidity.

For use, the apparatus is lashed to the upright of an irrigator stand, so that the lateral, E, is on a level with or below the point to be drained. Rubber tubing connects E to the drainage point. The intake, A, is connected to an irrigator can by means of rubber tubing, and the flow is controlled by a Hoffman cutoff. A Murphy drip glass may be inserted in the line if desired. Rubber tubes are connected to the distal ends of B and C, and their free ends immersed in water in separate vessels on the floor.

By filling the irrigator can and partially emptying the two floor receptacles occasionally, continuous suction is maintained.